

REMARKS

Claims 1-13 are pending in the application.

Claims 1-13 were rejected.

Claims 1, 3-4, 7-9, 11 and 13 are amended herein.

I. 35 U.S.C. §102 Claim Rejections

In the Office Action, claims 1-13 were rejected under 35 U.S.C. §102 as being anticipated by Rai *et al.*, (US. Patent No. 6,421,714). Applicants respectfully traverse this rejection and request reconsideration by the Examiner.

The invention is directed to a method for providing a connection between a mobile unit in a wireless communication system and multiple service areas of the wireless system. With the method of the invention, a substantially continuous connection is maintained between the mobile unit and data networks interfaced to the multiple service areas, as the mobile unit moves between a primary coverage area of a first service area and a primary coverage area of a second service area.

A key element of the invention is a novel network interface that is preferably provided at a wireless network controlling element, such as a Base Station Controller (BSC). According to the invention, that network interface operates to provide connectivity for a given Mobile Node (MN) to network controlling elements in two or more service areas of the wireless system.

As taught by the Applicants, an interface between a wireless system and a data network is manifested in a Packet Data Serving Node (PDSN), and, in such a system, the network controlling element (*e.g.*, BSC) for each serving area is interfaced to a separate PDSN.

Applicants further pointed out that a limitation of the current art is that, for a given MN, only one access connection (*i.e.* PDSN connection) to a data network is permitted at a time. Thus, as an

MN using a data connection moves from one serving area to another, a hard handoff is required from an initial serving network controlling element to a network controlling element in the second serving area. Applicants noted that the data loss associated with such a hard handoff could be ameliorated with installation of multiple transceivers in an MN, but that such a solution not only involved a significant cost penalty, but would also be inconsistent with present wireless system standards.

The invention provides a solution to that data loss problem using the existing MN architecture and consistent with current standards. In particular, the Applicants recognized that an MN can maintain plural communication paths using the Radio Link Protocol (RLP), and that this capability can be advantageously applied to provide data connectivity from an MN to multiple service areas. Based on that RLP capability, the Applicants devised a new network interface that can be implemented at a serving network controlling element to permit the MN to maintain separate RLP instances (channels) with the serving network controlling element and with another network controlling element in a separate serving area (where the other network controlling element is interfaced to a separate PDSN than the PDSN interfaced to the home network controlling element). With the network interface of the invention, the MN is thereby able to maintain simultaneous connections with multiple PDSNs.

The capability, according to the invention, for an MN to achieve simultaneous connectivity to multiple network controlling elements permits the MN to maintain a continuing data communications path with an original PDSN after having moved into a new serving area associated with another PDSN – and thus to avoid data loss during the time required for registration with the PDSN associated with the new service area. Specifically, as an MN moves

to a new serving area, it establishes plural communications channels with a network attachment point (e.g., a base transceiver station) in the new serving area, and ultimately with a network controlling element of the new serving area. At least one channel is established, via the new network controlling element, with the new PDSN for registration with that PDSN, and ultimately data transmission via that PDSN. At the same time, at least one other channel is established with the new network controlling element which is connected, via a communications channel between the new network controlling element and the original network controlling element, with the PDSN associated with that original network controlling element.

Thus, while the MN negotiates registration and initialization procedures with the PDSN of the new serving area (via the channel established with the new PDSN), its data communications stream is maintained with the original PDSN via the communications channel established from the MN, via the network controlling element of the new serving area and the original network controlling element, to the PSDN associated with the original network controlling element. Once the registration and initialization procedures have been completed with the new PDSN and a data communication channel established from the MN to the new PDSN (via the network controlling element of the new service area), the data communications channel established via the new network controlling element and the original network controlling element to maintain connectivity with the original PDSN is terminated.

Applicants acknowledge that the Rai reference is generally directed to the establishment of a data connection between a mobile node in a wireless system and a server in a data network, such as the Internet. However, Applicants further respectfully suggest that this is the only real similarity between the teaching of Rai and their invention.

According to the Rai disclosure (column 44, lines 42-44), the central idea of Rai is a hierarchical concept for mobility management, as a mobile node moves between access points in a wireless network. In particular, Rai is basically addressed to the establishment of the communications path between a mobile node and a data network server, where the link to the data network server is always provided via the home network for the mobile node. Rai then teaches a hierarchy of network path configurations for the establishment of a communications link between the mobile node and its home network, depending essentially on how far the network presently serving the mobile node is from the home network of that mobile node.

Nothing in the teaching of Rai could recently be construed to show or suggested the idea of plural communication channels between a mobile node and a network controlling element of the service area with which it is in communication, and certainly not the use of one of those communication channels to effect a continuing link with a prior network controlling element while registration with a data serving node associated with the new network controlling element is carried out via the other communication channel.

Although Rai includes a teaching that its system minimizes traffic loss during handoffs, it is clear from the teaching that such a result is accomplished through the buffering of traffic at an intermediate point in the network, and resending traffic that would have been lost during a handoff after confirmation of a successful handoff. There is simply no similarity between that approach and the method of the invention for providing simultaneous conductivity to both the old and the new data servers.

Although Applicants believe it clear that their invention is not anticipated by the teaching of Rai, they recognize that the initial claims may have been structured such that they arguably

read on that teaching. Accordingly, Applicants have amended independent claim 1, with conforming amendments to claims depending therefrom, in a manner believe to more clearly reflect that distinctiveness.

It is accordingly submitted that claim 1, as amended herein, is patentable over the teaching of Rai. All of the remaining rejected claims depend, either directly or indirectly, from claim 1, and thus also should be patentable. Withdrawal of the rejection under §102 of claims 1-13 is respectfully requested.

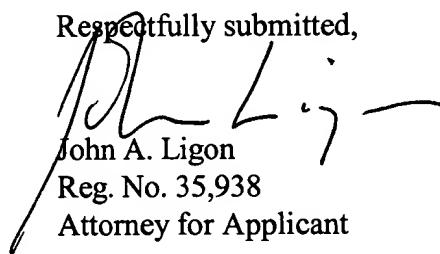
II. Conclusion

Having fully addressed the Examiner's rejection bases herein, it is believed that, in view of the preceding amendments and remarks, this application now stands in condition for allowance. Such allowance is respectfully requested.

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Please charge any fees due in respect to this amendment to Deposit Account No. 50-1944.

Respectfully submitted,


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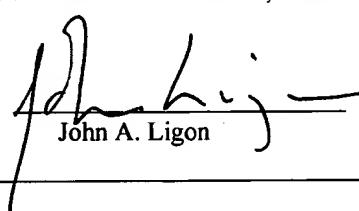
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I hereby certify that this Response to Office Action is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Assistant Commissioner for Patents, Washington, D.C. 20231 on April 21, 2003.

By:


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